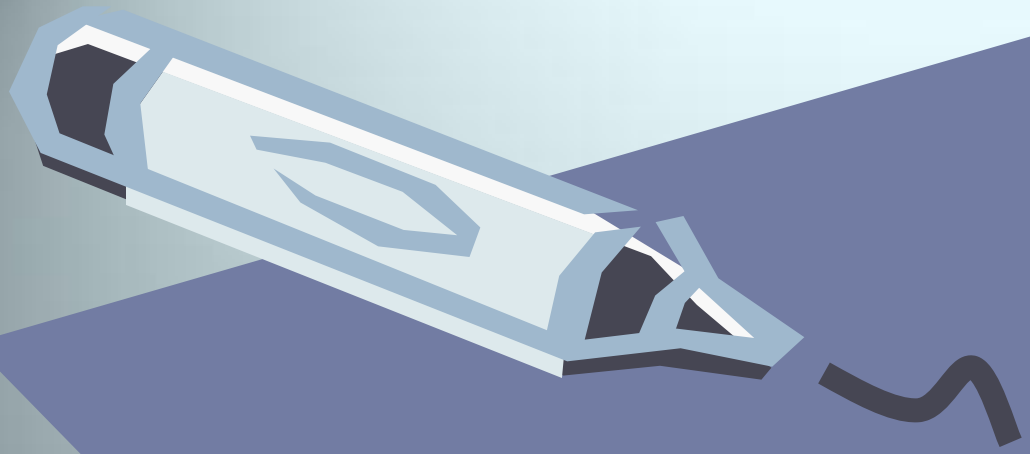

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Recommender Systems

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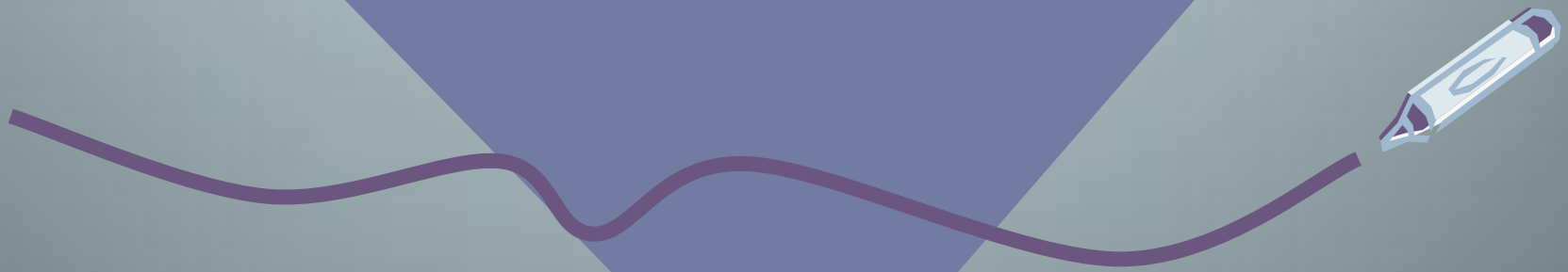

Questions

- What are recommender systems
- Why are they useful
- What are different types of them
- Limitations and possible improvements

What are they and Why are they

- **RS** – subclass of information filtering system;
- **RS** – seek to predict the rating;
- Enhance user experience;
  - Assist users in finding information;
  - Reduce search and navigation time.
- Increase productivity;
- Increase credibility.

Types of RS

Three broad types:

Content based RS

utilize a series of discrete characteristics of an item

Collaborative RS

build a model from a user's past behavior

Hybrid RS

Types of RS – Collaborative RS

Collaborative RS highlights

- Use other users recommendations (ratings) to judge item's utility
- Key is to find users/user groups whose interests match with the current user
- Vector Space model widely used (directions of vectors are user specified ratings)
- More users, more ratings: better results
- Can account for items dissimilar to the ones seen in the past too
- Example: Movielens.org

Problems

- Cold start
- Scalability
- Sparsity

Types of RS – Content based RS

Content based RS highlights

- Recommend items similar to those users preferred in the past
- User profiling is the key
- Items/content usually denoted by keywords
- Matching "user preferences" with "item characteristics" … works for textual information
- Vector Space Model widely used

Types of RS – Hybrid

Hybrid RS highlights

- combining collaborative filtering and content-based filtering
  - making content-based and collaborative-based predictions separately
  - adding content-based capabilities to a collaborative-based approach (and vice versa)
  - unifying the approaches into one model

- Example: Netflix

Thank you for listening!